EXISTING SYSTEM FACILITIES

Introduction

The Arizona system of airports includes 95 facilities of varying scale and levels of activity. The system airports include three facilities that are currently closed in the northeast quadrant of the State and one facility in southeastern Arizona that is temporarily closed for construction. The northeastern closed airports are included because they may be reinstated at any time into operation and may contribute to meeting system objectives for that region. Additionally, three new airports are included in the Study.

NAVAIDS, VISAIDS and Communications

The deployment of terminal navigational aids, visual landing aids, aviation weather facilities and communications outlets throughout the Arizona system of public-use airports is presented in Table 2-1 and Table 2-2. Maintenance responsibility for these facilities may be assigned to the Federal Aviation Administration (FAA) or the local airport sponsor (owner) and is also denoted in the tables. The data was obtained from FAA records of equipment owned and maintained by the agency, information provided in the "Airport Facility Directory" publication and input from airport owners.

The topics addressed in this study are relatively technical in nature and involve the use of acronyms. As an aid to the reader, a glossary of terms is presented in Appendix A.

A review of the data presented in Table 2-1 and Table 2-2 indicates that:

1. With four exceptions, the installation and maintenance of terminal navigation aids (NAVAIDS) has been a FAA responsibility. The exceptions are the nondirectional radio beacon (NDB) facilities at the Avra Valley, Chandler Municipal, Glendale Municipal and Sedona airports. Each NDB was acquired through a combination of FAA, Arizona Department of Transportation (ADOT) and airport sponsor funding through the federal Airport Improvement Program (AIP). As a

consequence, maintenance responsibilities for these facilities are assigned to the airport sponsors.

2. Nearly all visual landing aids (VISAIDS) were acquired through grant programs administered by the FAA and ADOT or by the airport sponsor solely. Federal and ADOT grants do not usually allow for maintenance and thus most facilities are maintained by the airport sponsor. Those facilities which are maintained by the FAA are typically approach lighting systems which complement precision instrument landing systems also established and maintained by the FAA, and certain VISAIDS. All runway and taxiway edge lighting systems are maintained by the airport sponsor.

3. Automated surface observing system (ASOS) facilities operational at the airports are maintained by the National Weather Service (NWS) or, when installed at a military air base or facility, by the responsible Department of Defense agency. Automated weather observing systems (AWOS) facilities are the responsibility of the FAA when installed under their Facilities and Equipment Program (F&E); otherwise, AWOS facilities are maintained by the airport sponsor.

4. Radio communications facilities comprise a variety of types. Those used for communication from the airport and the airport environment to en route air traffic control facilities such as remote transmitter/receiver (RTR) and remote communication outlet (RCO) units are maintained by the FAA. The FAA also establishes and maintains remote radio communication systems (RRCS) which are used to activate those VISAIDS which are similarly assigned to the FAA. Airport sponsors may also install similar systems to activate VISAIDS under their responsibility. These are indicated by the pilot controlled lighting (PCL) acronym. Communication between the airport and aircraft where an air traffic control tower (ATCT) is not operational is conducted on radios operated and maintained by the airport sponsor or its designee in accordance with Federal Communications Commission (FCC) standards.

In summary, the data presented in Table 2-1 and Table 2-2 indicates that the FAA is responsible for a majority of the terminal NAVAIDS, federal AWOS and some VISAID facilities at those airports with scheduled airline service and/or significantly higher activity levels. The NWS has maintenance responsibility for ASOS units. Airport sponsors at all airports are responsible for runway and taxiway edge lighting systems and most VISAIDS and communications facilities.

In addition to NAVAIDS and communications facilities located on the airports, the FAA has established these facilities at strategic locations in Arizona. This equipment is used for en route navigation (VORTAC and NDB) and as transmission nodes on internal FAA communications linkages (RCO). Because a VORTAC operates on a line-of-sight basis, terrain in its vicinity can restrict the reception of its transmitted signals at different altitudes. The extent of such restriction is typically a factor for flights flown at relatively low altitudes. RCO facilities are commonly collocated with VORTAC units when used off-airport and in such instances are given the same identifier name. These facilities and relevant data are summarized in Table 2-3. All these facilities are maintained by the FAA.

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Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID		VISAID		Comments
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
Ajo Municipal	None	--	LIRL (12-30)	Airport	
			VASI-2 (12)	Airport	
			VASI-2 (30)	Airport	
Ak-Chin Community	None	--	None	--	
Av Suquilla	None	--	MIRL (1-19)	Airport	
			PAPI-2 (1)	Airport	
			PAPI-2 (19)	Airport	
Avra Valley	NDB	Airport	MIRL (3-21)	Airport	NDB is VFR-only use.
			REIL (3)	Airport	
			REIL (12)	Airport	
			REIL (21)	Airport	
			REIL (30)	Airport	
			VASI-2 (3)	Airport	
			VASI-2 (21)	Airport	
Bagdad	None	--	LIRL	Airport	
Benson Municipal (New)	None	--	None	--	
Bisbee Douglas International	VORTAC	FAA	MIRL (8-26)	Airport	
			MIRL (17-35)	Airport	
			VASI-2 (17)	FAA	
			VASI-2 (35)	Airport	
Bisbee Municipal	None	--	MIRL (17-35)	Airport	
			PAPI-2 (17)	Airport	
			PAPI-2 (35)	Airport	
Bowie	None	--	None	--	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

| Airport | Terminal NAVAID | | VISAID | | Comments |
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
Buckeye Municipal	None	--	MIRL (17-35)	Airport	
			PAPI-4 (17)	Airport	
			PAPI-4 (35)	Airport	
Casa Grande Municipal	CAT I ILS (5)	FAA	MALSR (5)	FAA	
	DME (5)	FAA	MIRL (5-23)	Airport	
			VASI-2 (23)	Airport	
Chandler Municipal	NDB	Airport	MIRL (4L-22R)	FAA	
			MIRL (4R-22L)	FAA	
			PAPI-4 (4R)	FAA	
			PAPI-4 (22L)	FAA	
			REIL (4R)	FAA	
			REIL (22L)	FAA	
			VASI-2 (4L)	FAA	
			VASI-2 (22R)	FAA	
Chinle	None	--	None	--	
Cliff Dwellers Lodge	None	--	None	--	
Cochise College	None	--	LIRL (5-23)	Airport	
Cochise County	None	--	MIRL (3-21)	Airport	
Colorado City Municipal	NDB	FAA	MIRL (2-20)	Airport	
			MIRL (11-29)	Airport	
			PAPI-2 (11)	Airport	
			PAPI-2 (29)	Airport	
			REIL (11)	Airport	
			REIL (29)	Airport	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

| Airport | Terminal NAVAID | | VISAID | | Comments |
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
Coolidge Municipal	None	--	MIRL (5-23)	Airport	
			VASI-2 (5)	Airport	
			VASI-2 (23)	Airport	
Cordes Lake (New)	None	--	None	--	
Cottonwood Municipal	None	--	MIRL (14-32)	Airport	
			PAPI-2 (14)	Airport	
			PAPI-2 (32)	Airport	
			REIL (32)	Airport	
Douglas Municipal	None	--	MIRL (3-21)	Airport	
			PAPI-4 (3)	Airport	
			PAPI-4 (21)	Airport	
Duncan-O'Connor Field (Closed)	None	--	None	--	
Eloy Municipal	None	--	MIRL (2-20)	Airport	
			ODALS (20)	Airport	ODALS out of service
Ernest A. Love Field	CAT I ILS (21L)	FAA	MALSR (21L)	FAA	
	DME (21L)	FAA	MIRL (3L-21R)	Airport	
			MIRL (3R-21L)	Airport	
			MIRL (12-30)	Airport	
			PAPI-2 (3L)	Airport	
			PAPI-2 (12)	Airport	
			PAPI-2 (21R)	Airport	
			PAPI-2 (30)	Airport	
			PAPI-4 (3R)	Airport	
			PAPI-4 (21L)	Airport	
Estrella Sailport	None	--	None	--	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID		VISAID		Comments
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
Flagstaff-Pulliam	CAT I ILS (21)	FAA	MALSR (21)	FAA	CAT I ILS includes GS
	NDB	FAA	MIRL (3-21)	Airport	and LOC only
	VOR/DME	FAA	VASI-4 (3)	FAA	
			VASI-4 (21)	FAA	
Flying J Ranch	None	--	None	--	
Ganado	None	--	None	--	
Gila Bend Municipal	VORTAC	FAA	LIRL (4-22)	Airport	
Glendale Municipal	NDB	Airport	MIRL (1-19)	Airport	
			PAPI-2 (1)	Airport	
			PAPI-2 (19)	Airport	
Globe-San Carlos Regional	NDB	FAA	MIRL (9-27)	Airport	NDB out of service
			VASI-2 (9)	Airport	
			VASI-2 (27)	Airport	
Grand Canyon Bar-Ten	None	--	None	--	
Grand Canyon Caverns	None	--	None	--	
Grand Canyon National Park	CAT I ILS (3)	FAA	MALSR (3)	FAA	CAT I ILS (3) MM unusable
	VOR/DME	FAA	MIRL (3-21)	Airport	
			REIL (21)	FAA	
			VASI-4 (21)	FAA	
Grand Canyon West	None	--	None	--	
Greasewood (Closed)	None	--	None	--	
Greenlee County	None	--	MIRL (7-25)	Airport	
H.A. Clark Memorial Field	None	--	MIRL (18-36)	Airport	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID Type (R/W)	Maintenance	VISAID Type (R/W)	Maintenance	Comments
Holbrook Municipal	None	--	MIRL (3-21)	Airport	
			REIL (3)	Airport	
			REIL (21)	Airport	
			VASI-2 (3)	Airport	
			VASI-2 (21)	Airport	
Hualapai Tribal	None	--	None	--	
Kayenta	None	--	MIRL (5-23)	Airport	MIRL (5-23) out of service
			PVASI (23)	Airport	PVASI (23) out of service
Kearney	None	--	None	--	
Kingman	VOR/DME	FAA	MIRL (3-21)	Airport	
			MIRL (17-35)	Airport	
			PAPI-4 (17)	Airport	
			PAPI-4 (35)	Airport	
			VASI-2 (3)	Airport	
			VASI-2 (21)	Airport	
Lake Havasu City Municipal	None	--	MIRL (14-32)	Airport	
			PAPI-4 (14)	Airport	
			PAPI-4 (32)	Airport	
			REIL (14)	Airport	
			REIL (32)	Airport	
Laughlin/Bullhead International	None	--	MIRL (16-34)	Airport	
			PAPI-4 (16)	Airport	
			PAPI-4 (34)	Airport	
			REIL (16)	Airport	
			REIL (34)	Airport	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID		VISAID		Comments
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
Libby AAF/Sierra Vista	CAT I ILS (26)	US Air Force	HIRL (8-26)	US Air Force	
			LIRL (2-20)	US Air Force	
			MIRL (11-29)	US Air Force	
			PAPI-4 (11)	US Air Force	
			PAPI-4 (29)	US Air Force	
			VASI-2 (8)	US Air Force	
			VASI-2 (26)	US Air Force	
			REIL (16)	Airport	
Low Mountain (Closed)	None	--	None	--	
Lukachukai	None	--	None	--	
Marble Canyon	None	--	None	--	
Memorial Airfield	None	--	None	--	
Mesa-Falcon Field	NDB	FAA	MIRL (4L-22R)	Airport	
			MIRL (4R-22L)	Airport	
			PAPI-2 (4L)	Airport	
			PAPI-2 (4R)	Airport	
			PAPI-2 (22L)	Airport	
			PAPI-2 (22R)	Airport	
Nogales International	NDB	FAA	MIRL (3-21)	Airport	
	VOR/DME	FAA	SAVASI-2 (3)	Airport	
			SAVASI-2 (21)	Airport	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID		VISAID		Comments
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
Page Municipal	VOR/DME	FAA	MIRL (15-33)	Airport	
			REIL (15)	Airport	
			REIL (33)	Airport	
			VASI-4 (15)	FAA	
			VASI-4 (33)	FAA	
Payson	None	--	MIRL (6-24)	Airport	
			PAPI-2 (24)	Airport	
Pearce Ferry	None	--	None	--	
Phoenix-Deer Valley	None	--	MIRL (7L-25R)	Airport	
			MIRL (7R-25L)	Airport	
			PVASI (7L)	Airport	
			PVASI (25R)	Airport	
			REIL (7L)	Airport	
			REIL 7R)	Airport	
			REIL (25L)	Airport	
			REIL (25R)	Airport	
			VASI-2 (7R)	Airport	
			VASI-2 (25L)	Airport	
Phoenix-Goodyear	None	--	MIRL (3-21)	Airport	
			REIL (3)	Airport	
			REIL (21)	Airport	
			VASI-2 (3)	Airport	
			VASI-2 (21)	Airport	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID		VISAID		Comments
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
Phoenix-Sky Harbor International	CAT I ILS/DME (8R)	FAA	HIRL (8L-26R)	Airport	
	CAT I ILS (26R)	FAA	HIRL (8R-26L)	Airport	CAT I ILS (26R) Includes GS
			MALSR (8R)	FAA	and LOC only
			REIL (26L)	Airport	
			REIL (26R)	Airport	
			VASI-4 (8L)	FAA	
			VASI-6 (26L)	FAA	
			VASI-4 (26R)	FAA	
Pinal Airpark	None	--	MIRL (12-30)	Airport	
Pine Springs	None	--	None	--	
Pinon	None	--	None	--	
Pleasant Valley International	None	--	None	--	
Polaca	None	--	LIRL (4-22)	Airport	
Quartzsite (New)	None	--	None	--	
Rock Point	None	--	None	--	
Rocky Ridge	None	--	None		
Rolle Airfield	None	--	None		
Ryan Airfield	CAT I ILS (6R)	FAA	MIRL (6R-24L)	Airport	
	NDB	FAA	REIL (6R)	Airport	
			REIL (24L)	FAA	
Safford Regional	None	--	MIRL (8-26)	Airport	
			MIRL (12-30)	Airport	
			PAPI-2 (8)	Airport	
			PAPI-2 (26)	Airport	
			VASI-2 (12)	Airport	
			VASI-2 (30)	Airport	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID		VISAID		Comments
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
San Carlos	None	--	LIRL (14-32)	Airport	
San Manuel	None	--	None	--	
Scottsdale	NDB	FAA	MIRL (3-21)	Airport	
			PAPI-2 (3)	Airport	
			PAPI-2 (21)	Airport	
			REIL (3)	Airport	
			REIL (21)	Airport	
Sedona	NDB	Airport	MIRL (3-21)	Airport	NDB out of service
			REIL (3)	FAA	
			VASI-2 (3)	Airport	
			VASI-2 (21)	Airport	
Seligman	None	--	None	--	
Sells	None	--	None	--	
Show Low Municipal	NDB	FAA	MIRL (6-24)	Airport	
			PAPI-2 (6)	Airport	
			PAPI-2 (24)	Airport	
			REIL (6)	Airport	
			REIL (24)	Airport	
Shonto	None	--	None	--	
Springerville Babbit Field	None	--	MIRL (3-21)	Airport	
			MIRL (11-29)	Airport	
			VASI-2 (3)	Airport	
			VASI-2 (11)	Airport	
			VASI-2 (21)	Airport	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID		VISAID		Comments
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
St. Johns Industrial Airpark	None	--	MIRL (14-32)	Airport	
			PAPI-2 (14)	Airport	
			PAPI-2 (32)	Airport	
			REIL (32)	Airport	
Stellar Airpark	None	--	LIRL (17-35)	Airport	LIRL (17-35) is nonstandard
			VASI-4 (17)	Airport	
Sun Valley	None	--	LIRL (18-36)	Airport	LIRL (18-36) is nonstandard
Superior Municipal	None	--	None	--	
Taylor Municipal	None	--	MIRL (3-21)	Airport	
			PAPI-2 (3)	Airport	
			PAPI-2 (21)	Airport	
			REIL (3)	Airport	
			REIL (21)	Airport	
Temple Bar	None	--	None	--	
Tombstone Municipal	None	--	None	--	
Toyei School (Closed)	None	--	None	--	
Tuba City	None	--	MIRL (15-33)	Airport	MIRL (15-33) out of service
			PAPI-2 (15)	Airport	PAPI-2 (17) out of service
			PAPI-2 (33)	Airport	PAPI-2 (35) out of service

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID		VISAID		Comments
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
Tucson International	CAT I ILS (11L)	FAA	HIRL (11L-29R)	Airport	
	DME	FAA	MALSR (11L)	FAA	
			MIRL (11R-29L)	Airport	
			MIRL (3-21)	Airport	
			PAPI-4 (11L)	FAA	
			REIL (11R)	Airport	
			REIL (21)	FAA	
			REIL (29L)	Airport	
			REIL (29R)	Airport	
			VASI-4 (21)	FAA	
			VASI-6 (29R)	FAA	
Tuweep	None	--	None	--	
Whiteriver	None	--	MIRL (1-19)	Airport	
Wickenburg Municipal	None	--	MIRL (5-23)	Airport	
			PAPI-4 (23)	Airport	
Williams Gateway	CAT I ILS (30C)	Airport	ALSF-1 (30C)	Airport	
	VORTAC	FAA	MIRL (12C-30C)	Airport	
			MIRL (12R-30L)	Airport	
			VASI-4 (12C)	Airport	
			VASI-4 (30C)	Airport	
Window Rock	None	--	MIRL (2-20)	Airport	
			PAPI-2 (2)	Airport	
			REIL (2)	Airport	

Table 2-1
EXISTING FACILITIES SUMMARY
TERMINAL NAVAIDS AND VISAIDS

Airport	Terminal NAVAID		VISAID		Comments
	Type (R/W)	Maintenance	Type (R/W)	Maintenance	
Winslow Municipal	None	--	MIRL (4-22)	Airport	
			MIRL (11-29)	Airport	
			REIL (11)	FAA	
			REIL (22)	FAA	
			VASI-4 (11)	FAA	
			VASI-4 (22)	FAA	
			VASI-4 (29)	FAA	
Yuma International	CAT I ILS (21R)	FAA	HIRL (3L-21R)	Airport	Yuma International Airport is a
			HIRL (3R-21L)	Airport	civil / military joint use facility
			HIRL (8-26)	Airport	
			HIRL (17-35)	Airport	
			MALSR (21R)	FAA	
			REIL (35)	FAA	
			VASI-4 (17)	FAA	

Note: See Appendix A for acronym definitions.

Sources: FAA records and Airport / Facility Directory, 1997.

Table 2-2
EXISTING FACILITIES SUMMARY
WEATHER FACILITIES AND COMMUNICATIONS OUTLETS

Airport	Weather Facility		Communications Outlet		Comments
	Type	Maintenance	Type	Maintenance	
Ajo Municipal	None	--	CTAF	Airport	
			PCL	Airport	
			RCO	FAA	
Ak-Chin Community	None	--	None	--	
Av Suquilla	None	--	CTAF/Unicom	Airport	
			PCL	Airport	
Avra Valley	AWOS-3	Airport	CTAF/Unicom	Airport	
			PCL	Airport	
Bagdad	None	--	CTAF	Airport	
			RCO	FAA	
Benson Municipal (New)	None	--	None	--	
Bisbee Douglas International	None	--	CTAF/Unicom	Airport	
			RCO	FAA	
			RRCS	FAA	RRCS activates MIRL (17-35)
Bisbee Municipal	None	--	CTAF/Unicom	Airport	
			RCO	FAA	
Bowie	None	--	CTAF	Airport	
Buckeye Municipal	None	--	CTAF/Unicom	Airport	
			RCO	FAA	
Casa Grande Municipal	AWOS-3	FAA	CTAF/Unicom	Airport	
			RRCS	FAA	RRCS activates MALSR (5)
Chandler Municipal	AWOS-3	Airport	ATCT	Airport	
			ATIS	Airport	
			CTAF/Unicom	Airport	
			PCL	Airport	

Table 2-2
EXISTING FACILITIES SUMMARY
WEATHER FACILITIES AND COMMUNICATIONS OUTLETS

Airport	Weather Facility		Communications Outlet		Comments
	Type	Maintenance	Type	Maintenance	
Chinle	None	--	None	--	
Cliff Dwellers Lodge	None	--	Unicom	Airport	
Cochise College	None	--	CTAF/Unicom	Airport	
Cochise County	None	--	CTAF/Unicom	Airport	
			RCO	FAA	
Colorado City Municipal	AWOS-3	Airport	CTAF/Unicom	Airport	
		FAA	PCL	Airport	
Coolidge Municipal	None	--	CTAF/Unicom	Airport	
			PCL	Airport	
Cordes Lake (New)	None	--	None	--	
Cottonwood Municipal	None	--	CTAF/Unicom	Airport	
			PCL	Airport	
Douglas Municipal	None	--	CTAF/Unicom	Airport	
			PCL	Airport	
			RCO	FAA	
Duncan-O'Connor Field (Closed)	None	--	None	--	
Eloy Municipal	None	--	CTAF/Unicom	Airport	
Ernest A. Love Field	ASOS-C	NWS	ATCT	FAA	
			ATIS	FAA	
			CTAF	Airport	
			FSS	FAA	
			PCL	Airport	
			RTR	FAA	
			Unicom	Airport	
Estrella Sailport	None	--	CTAF	Airport	

Table 2-2
EXISTING FACILITIES SUMMARY
WEATHER FACILITIES AND COMMUNICATIONS OUTLETS

Airport	Weather Facility		Communications Outlet		Comments
	Type	Maintenance	Type	Maintenance	
Flagstaff-Pulliam	ASOS-C	NWS	ATCT	FAA	
			ATIS	FAA	
			CTAF	Airport	
			RCO	FAA	
			RRCS	FAA	RRCS activates MALSR (21) and MIRL (3-21)
Flying J Ranch	None	--	CTAF	Airport	
Ganado	None	--	CTAF	Airport	
Gila Bend Municipal	None	--	CTAF/Unicom	Airport	
			PCL	Airport	
			RCO	FAA	
Glendale Municipal			ATCT	FAA	
			CTAF	Airport	
			PCL	Airport	
			RCO	FAA	
			Unicom	Airport	
Globe-San Carlos Regional	None	--	CTAF/Unicom	Airport	
			PCL	Airport	
			RCO	FAA	
Grand Canyon Bar-Ten	None	--	CTAF	Airport	
Grand Canyon Caverns	None	--	CTAF/Unicom	Airport	

Table 2-2
EXISTING FACILITIES SUMMARY
WEATHER FACILITIES AND COMMUNICATIONS OUTLETS

Airport	Weather Facility		Communications Outlet		Comments
	Type	Maintenance	Type	Maintenance	
Grand Canyon National Park	ASOS-B	NWS	ATCT	FAA	
			ATIS	FAA	
			CTAF	Airport	
			RCO	FAA	
			RRCS	FAA	RRCS activates MALSR (3)
			RTR	FAA	and MIRL (3-21)
			Unicom	Airport	
Grand Canyon West	None	--	None	--	
Greasewood (Closed)	None	--	CTAF	Airport	
Greenlee County	None	--	CTAF	Airport	
			PCL	Airport	
H.A. Clark Memorial Field	None	--	CTAF	Airport	
Holbrook Municipal	None	--	CTAF	Airport	
			PCL	Airport	
			RCO	FAA	
Hualapai Tribal	None	--	None	--	
Kayenta	None	--	CTAF	Airport	
Kearney	None	--	CTAF	Airport	
Kingman	ASOS-D	NWS	CTAF/Unicom	Airport	
			RCO	FAA	
Lake Havasu City Municipal	AWOS-3	Airport	CTAF/Unicom	Airport	
			PCL	Airport	

Table 2-2
EXISTING FACILITIES SUMMARY
WEATHER FACILITIES AND COMMUNICATIONS OUTLETS

Airport	Weather Facility		Communications Outlet		Comments
	Type	Maintenance	Type	Maintenance	
Laughlin/Bullhead International	None	--	ATCT	FAA	
			CTAF	Airport	
			PCL	Airport	
			Unicom	Airport	
Libby AAF/Sierra Vista	AWOS-3	US Air Force	ATCT	US Air Force	
			ATIS	US Air Force	
			CTAF	US Air Force	
			PCL	US Air Force	
			Unicom	US Air Force	
Low Mountain (Closed)	None	--	None	--	
Lukachukai	None	--	None	--	
Marble Canyon	None	--	CTAF	Airport	
Memorial Airfield	None	--	Unicom	Airport	
Mesa-Falcon Field	LAWRS	FAA	ATCT	FAA	
			ATIS	FAA	
			CTAF	Airport	
			RTR	FAA	
			Unicom	Airport	
Nogales International	ASOS-D	NWS	CTAF/Unicom	Airport	
			PCL	Airport	
			RCO	FAA	
Page Municipal	ASOS-D	NWS	CTAF/Unicom	Airport	
			PCL	Airport	
			RCO	FAA	
Payson	None	--	CTAF/Unicom	Airport	

Table 2-2
EXISTING FACILITIES SUMMARY
WEATHER FACILITIES AND COMMUNICATIONS OUTLETS

Airport	Weather Facility		Communictions Outlet		Comments
	Type	Maintenance	Type	Maintenance	
Pearce Ferry	None	--	CTAF	Airport	
Phoenix-Deer Valley	ASOS-C	NWS	ATCT	FAA	
			ATIS	FAA	
			CTAF	Airport	
			RCO	FAA	
			RTR	FAA	
			Unicom	Airport	
Phoenix-Goodyear	LAWRS	FAA	ATCT	FAA	
			ATIS	FAA	
			CTAF	Airport	
			RCO	FAA	
			RTR	FAA	
			Unicom	Airport	
Phoenix-Sky Harbor International	ASOS-A	NWS	ATCT	FAA	
	LLWAS	FAA	ATIS	FAA	
			RCO	FAA	
			RTR	FAA	
			Unicom	Airport	
Pinal Airpark	None	--	CTAF/Unicom	Airport	
Pine Springs	None	--	None	--	
Pinon	None	--	None	--	
Pleasant Valley International	None	--	None	--	
Polacca	None	--	None	--	
Quartzsite (New)	None	--	None	--	
Rock Point	None	--	None	--	

Table 2-2
EXISTING FACILITIES SUMMARY
WEATHER FACILITIES AND COMMUNICATIONS OUTLETS

Airport	Weather Facility		Communications Outlet		Comments
	Type	Maintenance	Type	Maintenance	
Rocky Ridge	None	--	None		
Rolle Airfield	None	--	CTAF	Airport	
Ryan Airfield	AWOS-3	FAA	ATCT	FAA	
			CTAF	Airport	
			RCO	FAA	
Safford Regional	ASOS-D	NWS	CTAF/Unicom	Airport	
			RCO	FAA	
San Carlos	None	--	None	--	
San Manuel	None	--	CTAF	Airport	
Scottsdale	ASOS-C	NWS	ATCT	FAA	
	LAWRS	FAA	ATIS	FAA	
			CTAF	Airport	
			PCL	Airport	
			RCO	Airport	
			RTR	Airport	
			Unicom	Airport	
Sedona	AWOS-3	Airport	CTAF/Unicom	Airport	
			PCL	Airport	
			RCO	FAA	
			RRCS	FAA	RRCS activates REIL (3)
Seligman	None	--	CTAF	Airport	
Sells	None	--	CTAF	Airport	
			Unicom	Airport	
Show Low Municipal	None	--	CTAF/Unicom	Airport	
			PCL	Airport	

Table 2-2
EXISTING FACILITIES SUMMARY
WEATHER FACILITIES AND COMMUNICATIONS OUTLETS

Airport	Weather Facility		Communications Outlet		Comments
	Type	Maintenance	Type	Maintenance	
Shonto	None	--	None	--	
Springerville Babbit Field	None	--	CTAF/Unicom	Airport	
			PCL	Airport	
St. Johns Industrial Airpark	ASOS-D	NWS	CTAF/Unicom	Airport	
			RCO	FAA	
Stellar Airpark	None	--	CTAF/Unicom	Airport	
Sun Valley	None	--	CTAF/Unicom	Airport	
			PCL	Airport	
Superior Municipal	None	--	CTAF	Airport	
Taylor Municipal	AWOS-3	Airport	CTAF/Unicom	Airport	
			PCL	Airport	
Temple Bar	None	--	CTAF/Unicom	Airport	
Tombstone Municipal	None	--	CTAF	Airport	
Toyei School (Closed)	None	--	CTAF/Unicom	Airport	
Tuba City	None	--	CTAF	Airport	MIRL (15-33) out of service
			RCO	FAA	
Tucson International	ASOS-B	NWS	ATCT	FAA	
	LLWAS	FAA	ATIS	FAA	
			RCO	FAA	
			RTR	FAA	
			Unicom	Airport	
Tuweep	None	--	CTAF	Airport	
Whiteriver	None	--	CTAF/Unicom	Airport	
Wickenburg Municipal	None	--	CTAF/Unicom	Airport	
			PCL	Airport	

Table 2-2
EXISTING FACILITIES SUMMARY
WEATHER FACILITIES AND COMMUNICATIONS OUTLETS

Airport	Weather Facility		Communications Outlet		Comments
	Type	Maintenance	Type	Maintenance	
Williams Gateway	None	--	ATCT	FAA	
			ATIS	FAA	
			CTAF	Airport	
Window Rock	ASOS-D	NWS	CTAF/Unicom	Airport	
			PCL	Airport	
			RCO	FAA	
Winslow Municipal	ASOS-D	NWS	CTAF/Unicom	Airport	
			RCO	FAA	
			RRCS	FAA	
Yuma International	ASOS-A	US Navy	ATCT	USMC	Yuma International Airport is a civil / military joint use facility
			ATIS	USMC	
			CTAF	USMC	
			PCL	USMC	
			RCO	FAA	
			Unicom	USMC	

Note: See Appendix A for acronym definitions.

Sources: FAA records and Airport / Facility Directory, 1997.

Table 2-3
EXISTING OFF-AIRPORT NAVAIDS AND COMMUNICATIONS FACILITIES

Facility Name / Location	Type	Agency	Comments
Bard / Yuma	VORTAC	FAA	VORTAC unusable: 280° - 300° beyond 27 nm below 3,600' MSL
Bard / Yuma	RCO	FAA	--
Buckeye / Buckeye	VORTAC	FAA	VOR portion unusable: 060° - 075° beyond 28 nm below 4,000' MSL 230° - 260° beyond 35 nm below 5,000' MSL 280° - 320° beyond 35 nm below 7,000' MSL 320° - 020° beyond 37 nm below 6,000' MSL DME unusable 020° - 072° beyond 28 nm below 8,000' MSL
Dragoo / Libby-Sierra Vista	NDB	FAA	--
Drake / Prescott	VORTAC	FAA	VOR unusable: 055° - 080° beyond 29 nm below 9,300' MSL 125° - 140° beyond 35 nm below 8,500' MSL 140° - 160° beyond 30 nm below 9,500' MSL 160° - 175° beyond 35 nm below 9,500' MSL 175° - 185° beyond 30 nm below 9,500' MSL 185° - 195° beyond 23 nm below 9,100' MSL 195° - 220° beyond 13 nm below 9,100' MSL 220° - 235° beyond 25 nm below 9,100' MSL 265° - 275° beyond 30 nm below 8,800' MSL
Flagstaff / Flagstaff	NDB	FAA	--
Mingus Mountain / Jerome	RCO	FAA	--

Table 2-3
EXISTING OFF-AIRPORT NAVAIDS AND COMMUNICATIONS FACILITIES

Facility Name / Location	Type	Agency	Comments
Mount Lemon / Tucson	RCO	FAA	--
Needles / Topock	VORTAC	FAA	HIWAS broadcast VOR unusable: 100° - 130° beyond 27 nm below 6,600' MSL 170° - 220° beyond 20 nm below 5,800' MSL 220° - 280° beyond 35 nm below 6,800' MSL
Peach Springs / Peach Springs	VORTAC	FAA	--
Peach Springs / Peach Springs	RCO	FAA	--
Phoenix / Tempe	VORTAC	FAA	HIWAS broadcast 090° - 100° beyond 15 nm below 8,000' MSL 185° - 190° beyond 30 nm below 8,000' MSL 185° - 190° beyond 35 nm below 9,000' MSL 190° - 235° beyond 20 nm below 10,000' MSL 345° - 034° beyond 10 nm below 6,000' MSL 345° - 034° beyond 20 nm below 8,000' MSL 345° - 015° beyond 33 nm below 11,000' MSL 015° - 034° beyond 33 nm below 10,000' MSL
Robles	NDB	FAA	--

Table 2-3
EXISTING OFF-AIRPORT NAVAIDS AND COMMUNICATIONS FACILITIES

Facility Name / Location	Type	Agency	Comments
San Simon	VORTAC	FAA	VORTAC unusable: 020° - 050° beyond 30 nm below 8,000' MSL 150° - 190° beyond 28 nm below 11,300' MSL 190° - 220° beyond 30 nm below 9,000' MSL 235° - 250° beyond 30 nm below 9,900' MSL 350° - 360° beyond 30 nm below 8,000' MSL
St. Johns / St. Johns	VORTAC	FAA	--
Stanfield / Stanfield	VORTAC	FAA	--
Stanfield / Stanfield	RCO	FAA	--
Tuba City / Tuba City	VORTAC	FAA	--
Tucson / Tucson	VORTAC	FAA	HIWAS broadcast VORTAC unusable: 350° - 005° beyond 30 nm below 11,20' MSL 350° - 020° beyond 30 nm below 13,000' MSL
Willie / Chandler	VORTAC	FAA	VORTAC unusable: 150° - 195° beyond 20 nm below 7,500' MSL
Winslow / Winslow	VORTAC	FAA	HIWAS broadcast
Zuni / Zuni	VORTAC	FAA	HIWAS broadcast

Note: See Appendix A for acronym definitions.

Source: Airport / Facility Directory, 1997.

Air Traffic Control Radar Coverage

Radar coverage for air traffic control throughout Arizona is provided by airport surveillance radars (ASR) and air route surveillance radars (ARSR). ASR facilities are used primarily for terminal air traffic control and normally cover an area within a 55-nautical mile to 60-nautical mile radius of the radar site. ASR-9 units are installed in the Phoenix and Tucson areas and ASR-8 facilities at the Williams Gateway and Yuma International airports.

Radar facility coverage is characterized by line-of-sight and thus high terrain within the coverage radius of the ASR could block aircraft target identification at lower altitudes. This restriction occurs in portions of areas north, east and west of the Phoenix ASR beginning at elevations ranging between 1,500 feet above mean sea level (MSL) and 3,000 feet MSL.

Coverage of Arizona en route airspace is provided by ARSR-4 units located at Humboldt Mountain, and strategic sites near Seligman and Yuma in Arizona, and Angel Peak in Nevada. The ARSR normally provides a 200-nautical mile radius of coverage and those used for air traffic control purposes in Arizona airspace have clear areas of coverage at elevations of 11,000 feet MSL and above. Radar coverage below this altitude is spotty. This deficiency and alternate means to enhance radar coverage at low altitudes should be explored by ADOT Aeronautics with the FAA.

Required improvements or enhancements to the available radar coverage are a federal responsibility. In the future, satellite-based radar coverage technology will be implemented and this will overcome shortfalls associated with traditional ground-based radar systems as noted above.

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Aviation Weather

The NWS and FAA currently take or contract out manned aviation surface observations which on June 1, 1996 were renamed as meteorological aerodrome reports (METAR) at several locations within Arizona. The NWS may use its own staff at a weather forecast office (WFO) or weather service office (WSO) to take surface observations, or contract this activity at a weather service contract meteorological office (WSCMO). NWS observations are taken hourly or when needed as significant changes in weather occur.

The NWS has also established a supplemental aviation weather observation program where the federal government cannot provide aviation weather observations and has no requirement for such activity, except possibly to provide a forecast service for a particular location. These supplementary aviation weather reporting stations (SAWRS) are established and staffed by the local operators at their own expense and under NWS supervision and certification. However, SAWRS reports are not normally entered into the national weather data collection system because they are intended to serve certain aircraft operations at a particular airport. The SAWRS observations may be taken on an hourly or more frequent basis, or at irregular intervals, and are restricted to aircraft operated by the entity serving as the SAWRS observer.

The FAA takes hourly, or when required, special weather observations at airports under the limited aviation weather reporting program. These limited aviation weather reporting station (LAWRS) observations are taken by air traffic control tower (ATCT), automated flight service station (AFSS), flight service station (FSS) or contract personnel. The latter are termed federal contract weather observing sites (FCWOS).

The NWS and FAA are in the process of automating surface aviation weather observations although the NWS continues to operate 1960's technology automatic meteorological observing stations (AMOS) at some airports and nonairport locations. The NWS, as an element of its modernization plan, has initiated the establishment of ASOS units at selected airports across the country. The FAA F&E program provides for the establishment of Level 3 AWOS units. Airports not designated to receive an ASOS or F&E AWOS-3 may obtain an AWOS (Level A, 1, 2 or 3) through the FAA's administration of the AIP, or acquire the unit directly with its own funds or with state aviation agency funding participation. Many airports across the country have taken such action, including several airports in Arizona.

Table 2-2 also presents a summary of the existing installed or precommissioned deployment of ASOS and AWOS units at the public-use system airports in Arizona. An AWOS-3 is also operational at Bedard Field, a private-use system airport located approximately 17 nautical miles south-southwest of Kayenta, and is maintained by the airport sponsor.

Table 2-4 summarizes the location of existing NWS, FAA and local airport weather reporting locations in Arizona, and these are illustrated in Figure 2-1. Some are collocated with ASOS or AWOS units in order to afford opportunity for augmented reports by observers. In response to industry and pilot requests, the NWS and FAA have defined four levels of ASOS for which full, some or no augmentation is required. Table 2-5 summarizes the ASOS service standard levels, which are noted for the applicable sites presented in Table 2-1. The weather reporting parameters associated with AWOS facilities are shown in Table 2-6.

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Table 2-4
MANNED WEATHER OBSERVATION SITES

Airport	Type Service	Comments
Bisbee Douglas International	LAWRS[1]	24 hours; FAA contractor
Chandler Municipal	LAWRS	0600 - 2100; FAA ATCT observer
Ernest A. Love Field	LAWRS	24 hours; FSS observer and contractor
Libby AAF-Sierra Vista	LAWRS	0600 - 2100; US Army observer
Gila Bend Municipal	LAWRS	0700 - 2200; US Air Force observer
Mesa-Falcon Field	LAWRS	0600 - 2100
Payson (non-airport site)	SAWRS[2]	Every 3 hours between 0800 - 1700
Phoenix-Deer Valley	LAWRS	0600 - 2100; FAA ATCT observer
Phoenix-Goodyear	LAWRS	0600 - 2100; FAA contractor
Phoenix-Sky Harbor International	LAWRS	24 hours; FAA contractor
Safford Regional	AMOS[3]	24 hours; possible observer augmentation
Scottsdale	LAWRS	0600- 2100
Williams Gateway	SAWRS	0600 -2100

Notes : Hours where indicated are local time.

See Appendix A for acronym definitions.

Source: National Weather Service records, 1997.

1. LAWRS - Limited Aviation Weather Reporting Station.

2. SAWRS - Supplemental Aviation Weather Reporting Station.

3. AMOS - Automatic Meteorological Observing System.

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Figure 2-1
EXISTING WEATHER OBSERVATION SITES
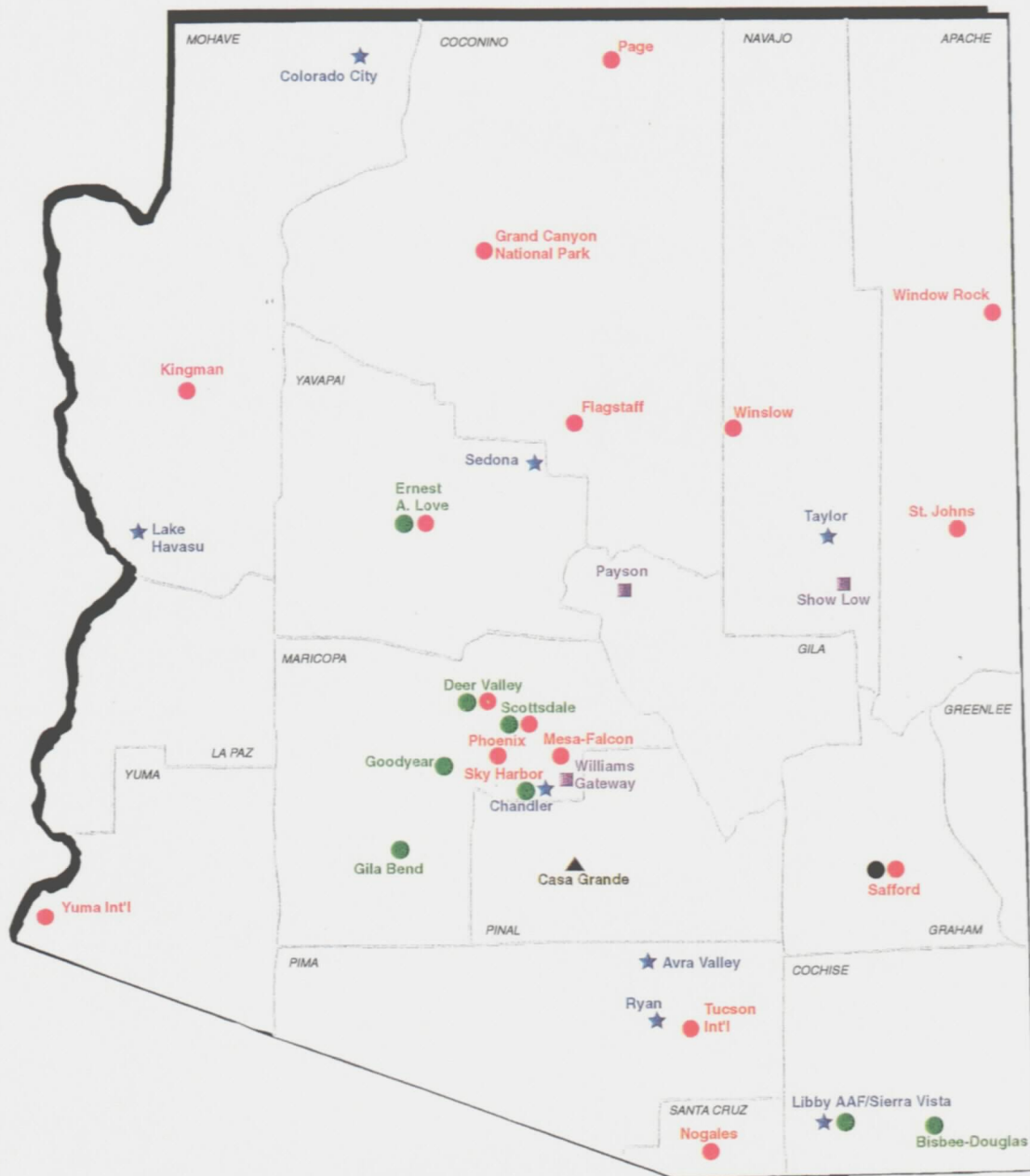
LEGEND

●	AMOS	Automatic Meteorological Observing System
●	ASOS	Automated Surface Observing System
★	AWOS	Automated Weather Observing System
▲	AWOS-F	AWOS-3 - FAA Facilities and Equipment Program Unit
●	LAWRS	Limited Aviation Weather Reporting Station
■	SAWRS	Supplemental Aviation Weather Reporting Station
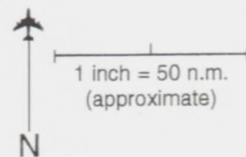
SOURCE: National Weather Service and Federal Aviation Administration records, 1997

Table 2-5
ASOS SERVICE STANDARD LEVELS (C and D)

ASOS SERVICE LEVEL D (No Augmentation)		ASOS AUGMENTATION SERVICE LEVEL C
Wind Speed and Direction	Temperature and Dew Point	Thunderstorms
Visibility	Altimeter	Tornadoes
Precipitation and Obstruction to Vision	Freezing Rain	Hail
		Virga
Cloud Height and Sky Cover	Lightning Reporting*	Volcanic Ash
		Tower Visibility

* In operational testing

Notes:

Augmentation consists of adding the weather elements shown for the designated ASOS Service Level at the site, if observed.

Back-up consists of inserting the correct value if the system malfunctions or is unrepresentative.

Air traffic control specialists are allowed the option of adding operationally significant remarks.

During hours that the observing facility is closed, the site reverts to Level Service D.

Service Level D consists of an ASOS continually measuring the atmosphere at a point near the runway.

Table 2-5
ASOS SERVICE STANDARD LEVELS (A and B)

**ASOS AUGMENTATION
SERVICE LEVEL B**

All Level Service C and:

    Longline Runway Visual Range at precedented sites*

    Freezing Drizzle versus Freezing Rain

    Ice Pellets

    Snow Depth and Snow Increasing Rapidly remarks

    Thunderstorms and Lightning Location remarks

    Observed Significant Weather not at the Station remarks

* In operational testing

**ASOS AUGMENTATION
SERVICE LEVEL A**

All Level Service B, C and:

    10-Minute Longline Runway Visual Range
    at precedented sites or Additional Visibility
    Increments of 1/8, 1/16 and 0*

    Sector Visibility

    Variable Sky Conditions

    Cloud Layers Above 12,000 feet
    and Cloud Types

    Widespread Dust, Sand and Other
    Obscurations

    Volcanic Eruptions

Notes: Augmentation consists of adding the weather elements shown for the designated ASOS Service Level at the site, if observed.

    Back-up consists of inserting the correct value if the system malfunctions or is unrepresentative.

    Air traffic control specialists are allowed the option of adding operationally significant remarks.

    During hours that the observing facility is closed, the site reverts to Level Service D.

    Service Level D consists of an ASOS continually measuring the atmosphere at a point near the runway.

Source: FAA document, 1997.

Table 2-6
AWOS LEVELS AND REPORTS

AWOS SPECIFICATIONS BY LEVEL

Sensor	Specification	AWOS Level			
		A	1	2	3
Atmospheric Pressure	16.9" Hg to 31/5" Hg	X	X	X	X
Wind Direction	Accuracy to +/- 5°		X	X	X
Wind Speed	0 knots to 125 knots		X	X	X
Temperature	-60°F to +130°F		X	X	X
Dew Point	-30°F to +86°F		X	X	X
Visibility	To and including 10 miles			X	X
Cloud Height	20 feet to 10,000 feet				X

AWOS REPORT DETAIL

Text of Report	Report Detail
Airport Identifcation	Airport name and location
Type of Report	States that the report is AWOS-generated
Time of Day	Greenwich Mean Time (GMT)
Sky Condition	Cloud height and sky coverage in 100-foot increments
Visibility	Visibility near runway
Temperature	Air temperature near runway
Dew Point	Condensation temperature near runway
Wind Direction	Speed to nearest knot if greater than 5 knots; calm if below 5 knots
Wind Gust	Reported to the nearest knot
Altimeter Setting	Pressure at surface to nearest 0.01" Hg

Source: FAA Advisory Circular, 150/5220-16B.

METAR Dissemination

Although the availability of a METAR is important to support aviation activity at the location where the observation is taken, the data is also of value to users in other locations for flight planning and weather forecasting purposes. Therefore, a system of networks exists to facilitate the collection and dissemination of weather data. Presently, NWS offices use the automation of field operations and services (AFOS) computer network to transmit this data to other NWS offices. Concurrently, the data is transmitted to the NWS Systems Operations Center (SOC) in Suitland, Maryland for distribution to various public agency and private subscriber users. The SOC gateway system transfers the data and other weather products (terminal forecasts, center weather advisories, (etc.) to the FAA national aviation weather processor (NAWP) in Salt Lake City, Utah that handles the western portion of the country including Arizona. A second NAWP is located in Atlanta, Georgia to serve the eastern half of the country. Each NAWP then forwards the data to each other and their associated regional FAA air route traffic control center (ARTCC), AFSS and FSS computers via the national airspace data interchange network (NADIN). FAA observations are transmitted to the NWS SOC via NADIN. There, the NWS uses AFOS to disseminate the FAA data to other NWS offices. NAWP serves as the primary FAA gateway to the NWS telecommunications gateway (NWSTG) which is the source of NWS products for the FAA and the national airspace system.

NADIN is a multi-node, distributor-processor network through which information pertaining to air traffic is exchanged between FAA facilities and the U.S. military, domestic air carriers, commercial data communication providers and the international aviation community. NADIN concentrators located at each ARTCC are connected to the NAWP. NADIN is being upgraded to a packet switching network referred to as NADIN-II that will permit high data flow capacity and efficiency to the network users.

NWS AMOS and ASOS and FAA F&E AWOS-3 reports are also collected and disseminated on their respective networks. The FAA is presently finalizing plans to establish the AWOS/ASOS data acquisition system (ADAS). ADAS will use landline communications to access AWOS- and ASOS-generated reports on a scheduled basis or when certain parameter levels are reached that trigger the release of a special report. This information is routed to ADAS concentrators located at the nearest ARTCC for distribution via the NAWP to serve other FAA facilities and via NADIN to NWS locations. Although ADAS is intended to serve FAA F&E AWOS-3 and FAA-required ASOS sites, data from airport sponsor-installed AWOS-3 units may be integrated into the FAA network under certain procedures and protocols.

ASOS and AWOS units located at nontowered airports broadcast their observations on a continuous basis via a discrete frequency transmitter or in conjunction with other very high frequency (VHF) radio transmission outlets. ASOS units located at airports with an ATCT and/or automatic terminal information system (ATIS) do not broadcast continuously when the ATCT or ATIS is operational. In these instances, the ASOS report is given by the air traffic controller or included in the ATIS broadcast.

Weather Radar

The NWS and FAA have instituted new weather radar programs that employ Doppler technology to monitor severe weather. The NWS program, commonly referred to as next generation radar (NEXRAD) will provide information on precipitation, wind velocity and turbulence at an advanced level of detection and is intended for advisories within en route airspace. NEXRAD provides weather products related to frontal activity, hail, hurricane, icing conditions, tornadoes, turbulence, winds and wind shear. NEXRAD also provides useful reflectivity and storm detection out to a radius of about 250 nautical miles. The Doppler products of NEXRAD are confined to a range of 125-nautical miles. NWS NEXRAD imagery will be conveyed via the advanced weather interactive processing system (AWIPS) for agency-wide distribution. The latest version of the NEXRAD program radar is the WSR-88D model.

The FAA has installed terminal Doppler weather radars (TDWR) at airports to provide improved short-range coverage. The TDWR identifies wind shear and other weather events by measuring wind fields within a 50-nautical mile radius of the terminal area. A TDWR is located approximately 10 miles west of the Phoenix Sky Harbor International Airport.

Table 2-7 identifies the NEXRAD and TDWR locations that provide coverage within Arizona. Nearly the entire State is covered by the NEXRAD sites, with many areas of overlap, as illustrated in Figure 2-2.

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Table 2-7
EXISTING WEATHER RADAR FACILITIES

Radar Location	Type Radar	Agency
Albuquerque, New Mexico	WSR-88D[1]	NWS
Cedar City, Utah	WSR-88D	NWS
El Paso, Texas	WSR-88D	NWS
Flagstaff, Arizona	WSR-88D	NWS
Las Vegas, Nevada	WSR-88D	NWS
Phoenix, Arizona	WSR-88D	NWS
Phoenix, Arizona	TDWR[2]	FAA
Tucson, Arizona	WSR-88D	NWS
Yuma, Arizona	WSR-88D	NWS

See Appendix A for acronym definitions.

Notes: 1. Weather Service Doppler Radar, 1988 model.

2. Terminal Doppler Weather Radar.

Sources: National Weather Service and FAA records, 1997.

Figure 2-2
EXISTING NEXRAD WEATHER RADAR COVERAGE

GRAND JUNCTION RADAR

CEDAR CITY RADAR

LAS VEGAS RADAR

ALBUQUERQUE RADAR

FLAGSTAFF RADAR

YUMA
YUMA RADAR

PHOENIX RADAR

TUCSON

TUCSON RADAR

EL PASO RADAR
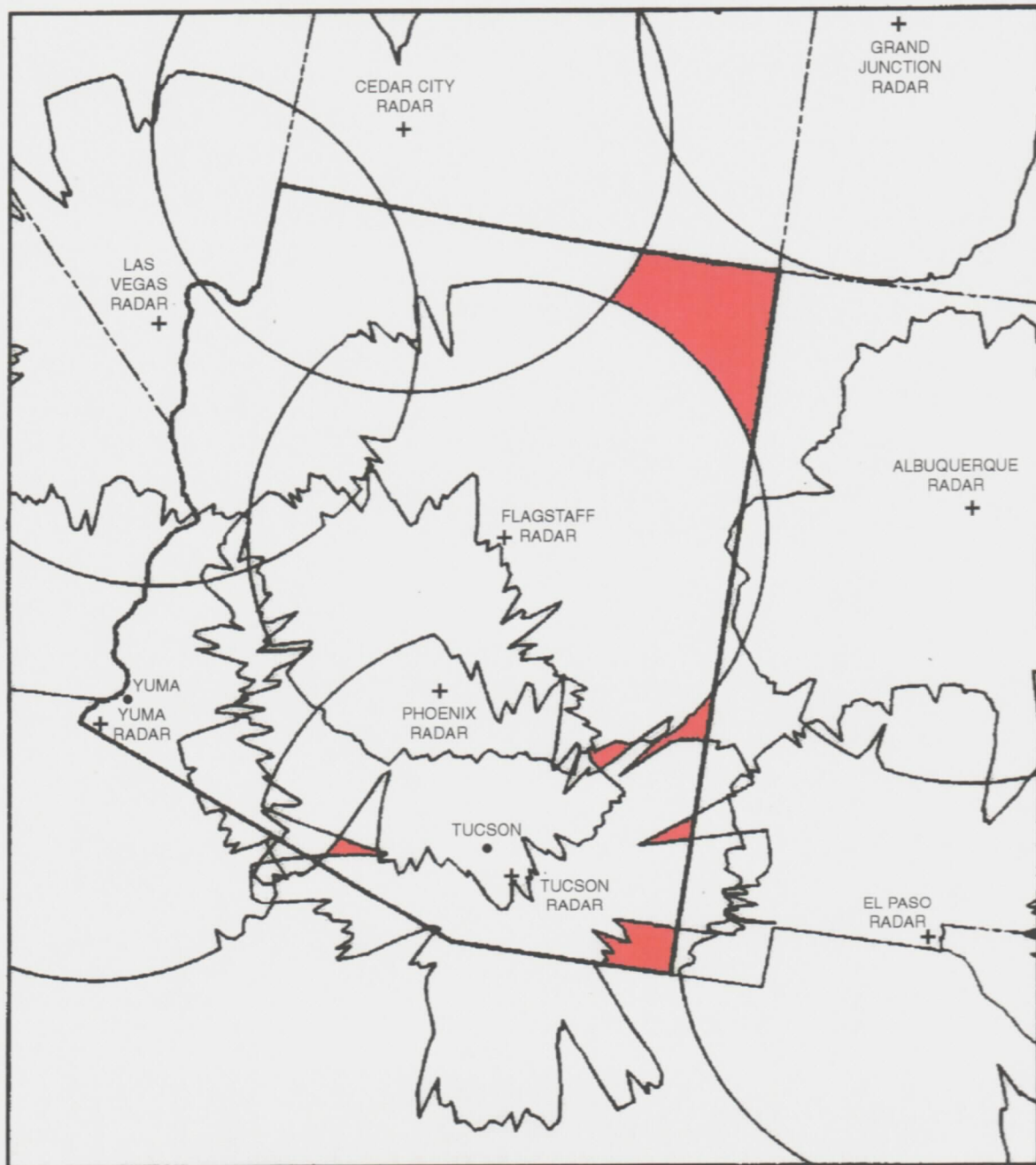
LEGEND

Area not covered below 10,000 feet above site level

+ NEXRAD site

Limit of coverage

1 inch = 80 n.m.
(approximate)

N
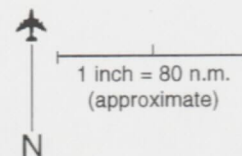
SOURCE: National Weather Service, 1997

AFSS/FSS Services

FAA AFSS and FSS facilities are a primary source of flight and weather information available to pilots. Within Arizona, there is a single AFSS located at the Ernest A. Love Field, Prescott. The AFSS provides pilots on the ground with pre-flight briefings and serve pilots in the air with similar information and services. One service provided by the AFSS is the dissemination of hazardous inflight weather advisory service (HIWAS) via the VHF omnidirectional radio (VOR, VORTAC) facilities that provide navigational information to pilots. HIWAS data are transmitted over these VOR/VORTAC facilities on an as required basis. The broadcast is essentially line-of-sight and dependent on the altitude of the aircraft and its avionics. The AFSS also receives pilot weather reports for dissemination to other pilots, ARTCC, NWS and other AFSS/FSS facilities.

The AFSS is supplemented by the FAA's direct user access terminal system (DUATS). DUATS permits FAA-certified pilots with personal computers to access weather briefing services (surface observations, winds aloft, temperatures aloft, terminal forecasts, pilot reports, and other nongraphic weather products) and to file flight plans via FAA-selected vendors. By redirecting the responsibility of these services to private contractors, the FAA expects to satisfy the increasing demand for such services while maintaining staffing levels. There is no charge to the pilot for the data and telephone call is toll free. The vendors are compensated by the FAA based on the number of calls received. Other on-line services to DUATS users include flight planning prior to filing, graphic weather information, and airport facilities information. These services are available for a fee. Pilots can also obtain weather data by dialing 1-800-WXBRIEF. This is a free service and telephone calls are routed to the AFSS nearest to the caller. A menu select feature allows the caller to listen to a pre-recorded weather summary via the telephone information briefing services (TIBS) or speak to a weather briefer at the AFSS.

Commercial Vendor Services

There are several vendors of surface weather condition information, weather radar imagery, flight planning assistance and filing services that are available to the aviation industry. Fixed base operators, corporate flight departments, aviation training schools and individual pilots can subscribe to such services, many of which are offered on a menu-style basis. A variety of such services is provided at some airports in Arizona.

Communications Facilities

All State of Arizona agencies use voice and data communications in the conduct of their activities. Voice transmission is managed by the Department of Administration that leases telephone lines from one of several companies operating in the State for use by State agencies with two exceptions. These are the Department of Revenue and Department of Economic Security, which operate on independent voice networks. Data communications are decentralized with each State agency using separately leased or owned facilities to support their operations. For the most part, these agency networks are not interconnected and may be characterized as multiple parallel networks. For example, two or more agencies in Phoenix may be contacting two or more branch offices in Flagstaff and using separate data communications linkages rather than a single data line which can then be switched to the desired branch office. Most of these stand-alone networks use a star topology and the most sophisticated of these is operated by the Arizona Department of Transportation. Named TRANSNET, this wide area frame relay network relies on leased T1 (1.544 mb/s) lines from AT&T and US West to link principal offices in Phoenix, Prescott, Tucson and Flagstaff to each other. These principal locations then are linked to their associated local area network offices via other leased lines for the transmission of data.

The Department of Administration has recognized the inefficiency of the existing statewide voice and data communications system. In response, the State is currently soliciting proposals from vendors to implement Project EAGLE for Statewide communication services. The intent of Project EAGLE is to cause a consolidation of these networks, reduce operating costs and encourage economic development. The project does not envision that the State would own and operate a communications system but rather serve as an anchor tenant between a single communications services provider and the EAGLE alliance. The initial EAGLE alliance participants are the three branches of Arizona State government (executive, legislative and judicial), community colleges, universities and libraries within 155 Arizona communities. Communication services to be provided include:

- Dedicated voice circuits
- Dedicated data services
- Packet-based services
- ISDN and xDSL services
- Cell-based services
- Voice value-added services
- Video value-added services

- Messaging services
- Internetworking related services
- Management and monitoring services
- Billing services
- Reporting services

Eventually Project EAGLE will be expanded to include other political subdivisions such as cities, counties and elementary/middle/high school districts.

When operational, Project EAGLE will enable a level of interconnectivity among units of government that presently cannot be achieved. Further, the resulting statewide communications services can support services that the Arizona Department of Transportation and Aeronautics Division may seek to provide to the aviation community.